

RESPONSE TO OFFICE ACTION
Serial No. 10/055,310
Page 9 of 44

REMARKS

This is intended as a full and complete response to the Office Action dated May 10, 2004, having a shortened statutory period for response set to expire on August 10, 2004. Please reconsider the claims pending in the application for reasons discussed below.

Claims 1 - 39 remain pending in the application and are shown above. Claims 1 - 39 are rejected by the Examiner. Reconsideration of the rejected claims is requested for reasons presented below.

CLAIM REJECTIONS

A. 35 U.S.C. §102(a): *Pu et al.*

1. Claim 37

Claim 37 stands rejected under 35 U.S.C. §102(a) as being anticipated by PCT Patent No. WO 99/48130 issued September 22, 1999 to *Pu et al.* (hereinafter referred to as "*Pu*"). The Applicants respectfully submit that the Examiner's conclusions regarding the patentability of claim 37 over *Pu* are incorrect.

Primarily, the Applicants submit that *Pu* does not teach, show or suggest every limitation the claimed invention. Namely, *Pu* does not teach, show or suggest an apparatus for lining a processing region including a center member for substantially covering an upper surface of the chamber, a cylindrical wall extending from the first side of the center member and adapted to line at least a portion of the walls of the processing chamber, and a substantially annular passage at least partially formed in the center member, as recited by independent claim 37.

By contrast, *Pu* teaches that the lid itself (i.e., an integral, permanent portion of the chamber body, not a removable liner for covering the lid) may include channels through which a dielectric cooling fluid can be pumped to regulate the lid temperature. However, *Pu* does not illustrate these channels or disclose any shape (e.g., "substantially annular"), structure, size or number for the channels. Moreover, while the lid taught by *Pu* may be coupled to the chamber sidewalls (i.e., again, to integral, permanent portions of the chamber body), the lid does not include any walls or portions that extend therefrom to line the chamber sidewalls (i.e., as removable liners for

308368

EST AVAILABLE COPIES

RESPONSE TO OFFICE ACTION
Serial No. 10/055,310
Page 10 of 44

covering or protecting the sidewalls). Therefore, the Applicants respectfully submit that the Examiner is reading structural limitations into *Pu* that simply are not taught or suggested by the disclosure.

As such, the Examiner fails to properly show that *Pu* anticipates all of the features required to sustain the Examiner's rejection under 35 U.S.C. §102 of the Applicants' claimed invention. The Applicants therefore submit that independent claim 37 is patentable over *Pu*. Accordingly, the Applicants respectfully requests the rejection of claim 37 be withdrawn.

B. 35 U.S.C. §103(a): *Shan et al.* in view of *Lee*

1. Claims 1-3 and 5

Claims 1-3 and 5 stand rejected under 35 U.S.C. §103(a) as being unpatentable over European Patent No. EP 0 814 495, issued December 29, 1997 to *Shan et al.* (hereinafter referred to as "*Shan*") in view of United States Patent No. 5,616,208 issued April 1, 1997 to *Lee* (hereinafter referred to as "*Lee*"). The Applicants respectfully submit that the Examiner's conclusions regarding the patentability of independent claim 1, and claims 2-3 and 5 that depend therefrom, are incorrect.

In particular, the Applicants submit that *Shan* and *Lee* do not, individually or in combination, teach, show or suggest all of the limitations of independent claim 1. Specifically, there is no suggestion or motivation for combining the teachings of *Shan* and *Lee* in a manner that would teach, show or suggest a chamber liner having a base substantially covering the bottom of the chamber body and an inner wall connected to and extending upward from an inner side of the base, the base, the inner wall, or both the base and the inner wall having a substantially annular passage formed therein that is fluidly isolated from the chamber processing volume, as recited by claim 1.

Shan teaches two removable shields that cover portions of a processing chamber: an inner anodized aluminum shield that lines a substrate support and an outer dielectric shield that lines a chamber wall. The outer dielectric shield primarily functions to control the DC bias of the substrate support by reducing the surface area of the chamber wall through which RF power is capacitively coupled to a positively charged

308368

RESPONSE TO OFFICE ACTION
Serial No. 10/055,310
Page 11 of 44

plasma (see, *Shan*, page 5, lines 7-10). In fact, *Shan* discloses the deposition shielding properties of the outer dielectric shield as being incidental to the primary purpose of controlling the substrate support's DC bias. As further disclosed by *Shan*, the ability of the outer dielectric shield to control the substrate support's DC bias is directly related to the thickness of the outer shield (see, *Shan*, page 2, lines 43-46).

By contrast, *Lee* teaches a permanent, hollow medium path built into the body of the chamber. Forming a similar hollow space for fluid flow within the outer shield taught by *Shan* would impede the primary function of the outer shield, which is to control the DC bias of the substrate support. This function is directly dependent upon the thickness of the outer shield, which would have to be thicker in order to accommodate a space large enough for a useful amount of heat transfer fluid to circulate therethrough. Moreover, the presence of a hollow space and/or fluid within the outer shield (*i.e.*, lining the chamber wall) may negatively interfere with the dielectric properties of the shield, thereby frustrating the primary goal of controlling DC bias, as stated by *Shan*. In addition, the formation of the shield from a dielectric material, as taught by *Shan*, would make the temperature control goals of *Lee* more difficult to achieve.

Furthermore, *Lee* teaches that the medium path is coupled to one or more switching valves that allow mediums of varying temperatures (*i.e.*, "warm" or "cool") to flow through the path, and that a ceramic heater may be employed to achieve even greater temperature variation (see, *Lee*, column 22, line 66 – column 23, line 8). However, *Shan* teaches that fluctuations in the temperatures of the shields lining the chamber is undesirable because it leads to greater particulate contamination (see, *Shan*, page 9, lines 29-30: "... cycling of the shield between high and low temperatures tends to cause deposits on the shields to flake off ..."). Thus, it is unlikely that the shields *Shan* would benefit from the incorporation of medium paths as taught by *Lee*, since the shields taught by *Shan* function most effectively when kept at substantially constant cool temperatures.

Finally, the shields taught by *Shan* prevent film deposition on chamber surfaces passively, *i.e.*, by providing a cool alternate surface on which deposits may accumulate. That is, deposition is, in a manner, encouraged on the shields (rather than on the chamber walls). *Lee*, by contrast, teaches active prevention by heating permanent

RESPONSE TO OFFICE ACTION
Serial No. 10/055,310
Page 12 of 44

chamber surfaces to repel deposition. Thus, there is no motivation from within the teachings of *Shan* (which disclose removable surfaces, or shields, on which it is permissible for deposits to accumulate) to incorporate a means for preventing deposition on the shields (e.g., by actively controlling the shield temperature).

MPEP §2141.03 requires the Examiner to consider the prior art in its entirety. "A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention". MPEP §2141.03, *W.L. Gore & Associates, Inc., v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed Cir. 1983), cert. denied, 469 U.S. 851 (1984). The Examiner has not considered either *Shan* or *Lee* as a whole, because there is no motivation to combine the particular shields or medium paths taught by *Shan* and *Lee*. The dielectric shield taught by *Shan* and the built-in heating means taught by *Lee* are not compatible structures and are incorporated into the respective plasma chambers to address very different problems. Therefore, there is no motivation to combine *Shan* and *Lee* in a manner that would yield the claimed invention.

By alleging that the Applicants' invention is taught by a combination of *Shan* and *Lee*, the Examiner is clearly using hindsight to pick and choose elements from the references to support his rejection. It is impermissible to use the claims as a framework from which to choose among individual references to recreate the claimed invention. *W. L. Gore Associates, Inc. v. Garlock, Inc.*, 220 U.S.P.Q. 303, 312 (1983). Moreover, the mere fact that a prior art structure could be modified to produce the claimed invention would not have made the modification obvious unless the prior art suggested the desirability of the modification. *In re Fritch*, 23 U.S.P.Q. 2d 1780, 1783, Fed. Cir. (1992); *In re Gordon*, 221 U.S.P.Q. 1125, 1127, Fed. Cir. (1984) (emphasis added). The rules applicable for combining references provide that there must be a suggestion from within the references to make the combination. *Uniroyal v. Rudkin-Wiley*, 5 U.S.P.Q. 2d 1434, 1438 (Fed. Cir. 1988); *In re Fine*, 5 U.S.P.Q. 2d at 1599 (emphasis added). Therefore, there is no justification for combining *Shan* and *Lee* in a manner that obviates the claimed invention.

The Examiner submits in the Office Action of May 10, 2004 that the reconstruction of the Applicants' claimed invention from the references is not improper

308368

RESPONSE TO OFFICE ACTION
Serial No. 10/055,310
Page 13 of 44

because it is allegedly based on knowledge which was within the level of ordinary skill at the time the claimed invention was made. However, the Applicants submit that at least for the reasons stated above, a person of ordinary skill in the pertinent art would, at the time the claimed invention was made, not perceive the teachings of *Shan* and *Lee* to be combinable. Thus, the Applicants submit that such a reconstruction based on hindsight reasoning is, in this case, inappropriate.

Moreover, even if the combination of the references was desirable, the combination of *Shan* and *Lee* does not teach or suggest the claimed invention, because neither reference teaches a fluid passage formed in an inner wall that extends from an inner side of the base, e.g., to line a substrate support.

The burden for establishing a prima facie case of obviousness falls on the Examiner. See, MPEP §2142. A basic requirement of establishing a prima facie case of obviousness is that the combination of prior art references must teach or suggest all the claim limitations and that there must be a motivation to combine the references. See, MPEP §2143.

The Examiner has failed to establish a prima facie case because there is no motivation to combine *Shan* and *Lee* in a manner to teach, show or suggest a chamber liner having a base substantially covering the bottom of the chamber body and an inner wall connected to and extending upward from an inner side of the base, the base, the inner wall, or both the base and the inner wall having a substantially annular passage formed therein that is fluidly isolated from the chamber processing volume, as recited by claim 1. The Examiner is using hindsight to employ the claimed invention as a framework to select elements from two divergent teachings.

Thus, at least for the reasons stated above, claim 1, and claims 2-3 and 5 that depend therefrom, are patentable over *Shan* in view of *Lee*. Therefore, the Applicants submit that claims 1-3 and 5 as they now stand, fully satisfy the requirements of 35 U.S.C. §103 and are patentable thereunder.

30836B

RESPONSE TO OFFICE ACTION
Serial No. 10/055,310
Page 14 of 44

2. Claims 7-10

Claims 7-10 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Shan* in view of *Lee*. The Applicants respectfully submit that the Examiner's conclusions regarding the patentability of independent claim 7, and claims 8-10 that depend therefrom, are incorrect.

Shan and *Lee* do not, individually or in combination, teach, show or suggest all of the limitations of independent claim 7. Specifically, as discussed above, there is no suggestion or motivation for combining *Shan* and *Lee* in a manner that would teach, show or suggest a single lining apparatus having a center member circumscribed by a flange, a cylindrical wall projecting upward from the center member inside of the flange, and a substantially annular passage formed in the center member, as recited by claim 7.

Even if combined, the combination of *Shan* and *Lee* does not teach or suggest the claimed invention, because neither reference teaches a single liner including a center member or base and two walls or flanges (e.g., inner and outer walls) projecting therefrom, i.e., in a unitary piece. Although *Shan* teaches that a portion of an inner liner may include a bottom, coupling the bottom to the outer liner would run counter to the teachings of *Shan*, which teaches that the inner liner (including the bottom) and the outer liner are formed from different materials (e.g., a dielectric and a thermal conductor, respectively; See *Shan*, page 9, lines 36-44), in order to achieve different purposes. A combination of *Shan* and *Lee* would therefore require at least two separate, unconnected liners for lining the sidewall and the bottom of the chamber. Thus, *Shan* and *Lee* do not, individually or in combination, teach forming a single liner component having both inner and outer walls or flanges, as positively claimed by independent claim 7.

Thus, claim 7, and claims 8-10 that depend therefrom, are patentable over *Shan* in view of *Lee*. Therefore, the Applicants submit that claims 7-10, as they now stand, fully satisfy the requirements of 35 U.S.C. §103 and are patentable thereunder.

308368

RESPONSE TO OFFICE ACTION
Serial No. 10/055,310
Page 15 of 44

3. Claims 11-12, 14-17 and 20-23

Claims 11-12, 14-17 and 20-23 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Shan* in view of *Lee*. The Applicants respectfully submit that the Examiner's conclusions regarding the patentability of independent claim 11, and claims 12, 14-17 and 20-23 that depend therefrom, are incorrect.

Shan and *Lee* do not, individually or in combination, teach, show or suggest all of the limitations of independent claim 11. Specifically, there is no suggestion or motivation for combining *Shan* and *Lee* in a manner that would teach, show or suggest a semiconductor processing chamber liner adapted to be removably disposed within a processing region and having a base for substantially covering a bottom of the chamber, where a passage is formed at least partially in the base for fluidly isolating a heat transfer fluid flowing therethrough from the processing region, as recited by claim 11.

Moreover, there is no teaching or suggestion to combine *Shan* and *Lee* in a manner that would yield the invention of claim 23, because neither reference teaches the limitation of a bottom coupled between an outer cylindrical wall and an inner cylindrical wall, e.g., to form a unitary liner than can line a sidewall, bottom and substrate support within a processing chamber. As discussed above, a combination of *Shan* and *Lee* would require at least two separate, unconnected liners formed of different materials for lining the sidewall and the bottom of the chamber.

Thus, claim 11, and claims 12, 14-17 and 20-23 that depend therefrom, are patentable over *Shan* in view of *Lee*. Therefore, the Applicants submit that claims 11-12, 14-17 and 20-23, as they now stand, fully satisfy the requirements of 35 U.S.C. §103 and are patentable thereunder.

4. Claims 25-26 and 28-31

Claims 25-26 and 28-31 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Shan* in view of *Lee*. The Applicants respectfully submit that the Examiner's conclusions regarding the patentability of independent claim 25, and claims 26 and 28-31 that depend therefrom, are incorrect.

308368

RESPONSE TO OFFICE ACTION
Serial No. 10/055,310
Page 16 of 44

Shan and *Lee* do not, individually or in combination, teach, show or suggest all of the limitations of independent claim 25. Specifically, there is no suggestion or motivation for combining *Shan* and *Lee* in a manner that would teach, show or suggest a liner having an annular base and a cylindrical wall extending from a perimeter of the base, where a substantially annular passage is formed at least partially in the base, as recited by claim 25.

Even if combined, the combination of *Shan* and *Lee* does not teach or suggest the claimed invention, because neither reference teaches that a base and an outer sidewall (e.g., coupled to the perimeter of the base) of a liner can be formed as a single, unitary piece.

For at least the same reason, claims 30 and 31 are likewise not obviated by the combination of *Shan* and *Lee*. Claim 30 teaches that the liner further comprises a second cylindrical wall coupled to an inner portion of the base, e.g., to form a single liner piece having a base and inner and outer walls. Claim 31 recites that the base and the cylindrical wall are formed of a common material (e.g., aluminum, ceramic or stainless steel). As a combination of *Shan* and *Lee* would require at least two separate, unconnected liners formed of different materials, claims 30 and 31 are clearly not obviated by the referenced combination.

Thus, claims 25-26 and 28-31 are patentable over *Shan* in view of *Lee*. Therefore, the Applicants submit that claims 25-26 and 28-31, as they now stand, fully satisfy the requirements of 35 U.S.C. §103 and are patentable thereunder.

5. Claims 33-35

Claims 33-35 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Shan* in view of *Lee*. The Applicants respectfully submit that the Examiner's conclusions regarding the patentability of independent claim 33, and claims 34-35 that depend therefrom, are incorrect.

308368

RESPONSE TO OFFICE ACTION
Serial No. 10/055,310
Page 17 of 44

Shan and *Lee* do not, individually or in combination, teach, show or suggest all of the limitations of independent claim 33. Specifically, there is no suggestion or motivation for combining *Shan* and *Lee* in a manner that would teach, show or suggest a liner having an annular base for covering a bottom of a processing chamber, a first cylindrical wall coupled to an outer portion of the base for extending along sidewalls of the chamber, a second cylindrical wall coupled to an inner portion of the base for extending along a substrate support, and a substantially annular passage formed at least partially in the base, as recited by claim 33.

Even if combined, the combination of *Shan* and *Lee* does not teach or suggest the claimed invention, because neither reference teaches that single, unitary chamber liner can include a base and inner and outer walls.

Moreover, claim 34 is not obviated by the combination of *Shan* and *Lee*, as neither reference teaches at least one ridge extending between a first cylindrical wall and a second cylindrical wall of a chamber liner in a spaced-apart relation to a base of the liner.

Thus, claims 33-35 are patentable over *Shan* in view of *Lee*. Therefore, the Applicants submit that claims 33-35, as they now stand, fully satisfy the requirements of 35 U.S.C. §103 and are patentable thereunder.

6. Claim 36

Claim 36 stands rejected under 35 U.S.C. §103(a) as being unpatentable over *Shan* in view of *Lee*. The Applicants respectfully submit that the Examiner's conclusions regarding the patentability of independent claim 36 are incorrect.

Shan and *Lee* do not, individually or in combination, teach, show or suggest all of the limitations of independent claim 36. Specifically, there is no suggestion or motivation for combining *Shan* and *Lee* in a manner that would teach, show or suggest a cylindrical liner section adapted to line a wall of a processing chamber, a center section coupled to one end of the cylindrical section for lining an upper surface of a processing chamber, and a substantially annular passage at least partially formed in the center section, where the cylindrical section and the center section form a single piece structure, as recited by claim 36.

308368

RESPONSE TO OFFICE ACTION
Serial No. 10/055,310
Page 18 of 44

Even if combined, the combination of *Shan* and *Lee* does not teach or suggest the claimed invention, because neither reference teaches a liner that is adapted to line an upper surface of a processing chamber, or a single liner that is adapted to line both a chamber wall and an upper chamber surface. Moreover, neither *Shan* nor *Lee* teaches or suggests a passage formed in a portion of a liner adapted to line an upper section of a processing chamber.

Thus, claim 36 is patentable over *Shan* in view of *Lee*. Therefore, the Applicants submit that claim 36, as it now stands, fully satisfies the requirements of 35 U.S.C. §103 and is patentable thereunder.

7. Claims 37-39

Claims 37-39 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Shan* in view of *Lee*. The Applicants respectfully submit that the Examiner's conclusions regarding the patentability of independent claim 37, and claims 38-39 that depend therefrom, are incorrect.

Shan and *Lee* do not, individually or in combination, teach, show or suggest all of the limitations of independent claim 37, from which claims 38-39 depend. Specifically, there is no suggestion or motivation for combining *Shan* and *Lee* in a manner that would teach, show or suggest a liner having a center member for substantially covering an upper surface of a processing chamber, a cylindrical wall extending from a side of the center member that is exposed to a processing volume, the cylindrical wall being adapted to line walls of the processing chamber, and a substantially annular passage formed at least partially in the center member and adapted to isolate a heat transfer fluid flowing therethrough from the processing volume, as recited by claim 37.

Even if combined, the combination of *Shan* and *Lee* does not teach or suggest the claimed invention, because neither reference teaches a liner that is adapted to line an upper surface of a processing chamber, or a single liner that is adapted to line both a chamber wall and an upper chamber surface. Moreover, neither *Shan* nor *Lee* teaches or suggests a passage formed in a portion of a liner adapted to line an upper section of a processing chamber.

308368

RESPONSE TO OFFICE ACTION
Serial No. 10/055,310
Page 19 of 44

Thus, claims 37-39 are patentable over *Shan* in view of *Lee*. Therefore, the Applicants submit that claims 37-39, as they now stand, fully satisfy the requirements of 35 U.S.C. §103 and are patentable thereunder.

C. 35 U.S.C. §103(a): *Shan* in view of *Lee* and further in view of *Collins et al.*

1. Claim 4

Claim 4 stands rejected under 35 U.S.C. §103(a) as being unpatentable over *Shan* in view of *Lee* and further in view of European Patent No. EP 0 807 953, issued November 19, 1997 to *Collins et al.* (hereinafter referred to as "*Collins*"). The Applicants respectfully submit that the Examiner's conclusions regarding the patentability of claim 4 are incorrect.

As discussed above, the Applicants submit that there is no motivation for modifying the system taught by *Shan* with the teachings of *Lee* in a manner that would yield the invention recited by independent claim 1, from which claim 4 depends. *Collins* does not bridge this gap in the teachings of *Shan* and *Lee*. *Collins* teaches a pair of magnets disposed within the permanent walls of the processing chamber, and not within a removable chamber liner. The magnets are disposed on opposite sides of a pumping annulus, in order to confine plasma and prevent plasma flow from escaping the chamber and entering the pumping annulus. Thus, whereas *Shan* and *Lee* are concerned with reducing the amount of deposition on the walls and/or pedestal of the chamber, *Collins* is concerned with preventing plasma from traveling to certain portions of the chamber (i.e., prevent plasma from escaping the chamber or depositing on ports to the chamber exterior). Therefore, the magnets taught by *Collins* would not necessarily provide any benefit to or enhancement of the advantages sought by the teachings of *Shan* and *Lee*.

The Examiner alleges, in the Office Action of May 10, 2004, that a broad, reasonable interpretation of the meaning of "inner wall" is clearly met by the teachings of *Collins*. However, the Applicants respectfully submit that this broad reading overlooks a key aspect of the present invention, which is that the liner is removable. Moreover, the apparatus taught by *Shan* is also described as being removable.

308368

RESPONSE TO OFFICE ACTION
Serial No. 10/055,310
Page 20 of 44

However, there is no suggestion or teaching in *Collins* to indicate that the magnets incorporated therein are anything other than fixed (e.g., not removable from the chamber), as they are positioned within a permanent part of the chamber body. Thus, there is no motivation to combine the teachings of *Collins* with those of *Shan* and *Lee* in a manner that would yield the claimed invention.

Thus, the Examiner has failed to establish a *prima facie* case because there is no motivation to combine *Shan*, *Lee* and *Collins* in a manner to teach, show or suggest all of the limitations of independent claim 1, from which claim 4 depends. Moreover, *Shan*, *Lee*, and *Collins* do not teach, show or suggest the additional limitation of a magnet disposed within the inner wall of the liner, as recited by claim 4. The Examiner is thus using hindsight to employ the claimed invention as a framework to select elements from divergent teachings.

As such, the Examiner fails to properly show that *Shan* in view of *Lee* and further in view of *Collins* teaches, shows or suggests all of the features required to sustain the Examiner's rejection under 35 U.S.C. §103 of the Applicants' claimed invention. The Applicants therefore submits that independent claim 1, and claim 4 that depends therefrom, are patentable over *Shan* in view of *Lee* and further in view of *Collins*. Accordingly, the Applicants respectfully requests the rejection of claim 4 be withdrawn.

2. Claims 18-19

Claims 18-19 stands rejected under 35 U.S.C. §103(a) as being unpatentable over *Shan* in view of *Lee* and further in view of *Collins*. The Applicants respectfully submit that the Examiner's conclusions regarding the patentability of claims 18-19 are incorrect.

Shan, *Lee*, and *Collins* do not, individually or in combination, teach, show or suggest all of the limitations of independent claim 11, from which claims 18-19 depend. Moreover, *Shan*, *Lee*, and *Collins* do not teach, show or suggest the additional limitation of a magnet disposed within the cylindrical wall, as recited by claim 18, or the additional limitation of a lip extending into the process volume and having a magnet disposed therein, as recited by claim 19.

308368

RESPONSE TO OFFICE ACTION
Serial No. 10/055,310
Page 21 of 44

Therefore, claims 18-19 are patentable over *Shan* in view of *Lee* and further in view of *Collins*. Therefore, the Applicants submit that claims 18-19 as they now stand fully satisfy the requirements of 35 U.S.C. §103 and are patentable thereunder.

D. 35 U.S.C. §103(a): *Shan* in view of *Lee* and further in view of *Reimold et al.*

1. Claim 6

Claim 6 stands rejected under 35 U.S.C. §103(a) as being unpatentable over *Shan* in view of *Lee* and further in view of German Patent No. DE 31 10489, issued October 20, 1982 to *Reimold et al.* (hereinafter referred to as "*Reimold*"). The Applicants respectfully submit that the Examiner's conclusions regarding the patentability of claim 6 are incorrect.

As discussed above, the Applicants submit that there is no motivation for modifying the system taught by *Shan* with the teachings of *Lee* in a manner that would yield the invention recited in independent claim 1, from which claim 6 depends. *Reimold* does not bridge this gap in the teachings of *Shan* and *Lee*. *Reimold* teaches a heat exchanger comprising a jacket tube that includes a plurality of interfaces for the supply or removal of a heat exchanging medium. As the heat exchanging fluid taught by *Lee* is provided by a simple inlet pipe and is confined to the hollow medium path, and because *Lee* does not appear describe an outlet or means for evacuating the fluid from the medium path, there is little need for a heat exchanger such as that described by *Reimold*, in which a plurality of bosses are provided for establishing a plurality of connections to other components. Therefore, the heat exchanger taught by *Reimold* would not necessarily provide any benefit to or enhancement of the advantages sought by the teachings of *Shan* and *Lee*. Thus, the Applicants submit that the Examiner is exercising hindsight in using the references to obviate the claims at issue.

Thus, the Examiner has failed to establish a prima facie case because there is no suggestion or motivation to combine *Shan*, *Lee* and *Reimold* in a manner to teach, show or suggest all of the limitations of independent claim 1, from which claim 6 depends. Moreover, *Shan*, *Lee*, and *Reimold* do not teach, show or suggest the

308368

RESPONSE TO OFFICE ACTION
Serial No. 10/055,310
Page 22 of 44

additional limitation of first and second bosses projecting from the base and individually in fluid communication with the passage at the inlet and the outlet, as recited by claim 6.

As such, the Examiner failed to properly show that *Shan* in view of *Lee* and further in view of *Reimold* teaches, shows or suggests all of the features required to sustain the Examiner's rejection under 35 U.S.C. §103 of the Applicants' invention. The Applicants therefore submit that independent claim 1, and claim 6 that depends therefrom, are patentable over *Shan* in view of *Lee* and further in view of *Reimold*. Accordingly, the Applicants respectfully requests the rejection of claim 6 be withdrawn.

2. Claim 13

Claim 13 stands rejected under 35 U.S.C. §103(a) as being unpatentable over *Shan* in view of *Lee* and further in view of *Reimold*. The Applicants respectfully submit that the Examiner's conclusions regarding the patentability of claim 13 are incorrect.

Specifically, *Shan*, *Lee*, and *Reimold* do not, individually or in combination, teach, show or suggest all of the limitations of independent claim 11, from which claim 13 depends. Moreover, *Shan*, *Lee*, and *Reimold* do not teach, show or suggest the additional limitation of first and second bosses projecting from the base and individually in fluid communication with the passage at the inlet and the outlet, as recited by claim 13.

Therefore, claim 13 is patentable over *Shan* in view of *Lee* and further in view of *Reimold*. Therefore, the Applicants submit that claim 13 as it now stands fully satisfies the requirements of 35 U.S.C. §103 and is patentable thereunder.

3. Claim 27

Claim 27 stands rejected under 35 U.S.C. §103(a) as being unpatentable over *Shan* in view of *Lee* and further in view of *Reimold*. The Applicants respectfully submit that the Examiner's conclusions regarding the patentability of claim 27 are incorrect.

Shan, *Lee*, and *Reimold* do not, individually or in combination, teach, show or suggest all of the limitations of independent claim 25, from which claim 27 depends. Moreover, *Shan*, *Lee*, and *Reimold* do not teach, show or suggest the additional

308368

RESPONSE TO OFFICE ACTION
Serial No. 10/055,310
Page 23 of 44

limitation of first and second bosses projecting from the base and individually in fluid communication with the passage at the inlet and the outlet, as recited by claim 27.

Therefore, claim 27 is patentable over *Shan* in view of *Lee* and further in view of *Reimold*. Therefore, the Applicants submit that claim 27 as it now stands fully satisfies the requirements of 35 U.S.C. §103 and is patentable thereunder.

E. 35 U.S.C. §103(a): *Shan* in view of *Lee* and further in view of *Banholzer, et al.*

1. Claim 24

Claim 24 stands rejected under 35 U.S.C. §103(a) as being unpatentable over *Shan* in view of *Lee* and further in view of United States Patent No. 5,565,058, issued October 15, 1996 to *Banholzer et al.* (hereinafter referred to as "Banholzer"). The Applicants respectfully submit that the Examiner's conclusions regarding the patentability of claim 24 are incorrect.

As discussed above, the Applicants submit that there is no motivation for modifying the system taught by *Shan* with the teachings of *Lee* in a manner that would yield the claimed invention recited in independent claim 11, from which claim 24 depends. *Banholzer* does not bridge this gap in the teachings of *Shan* and *Lee*. *Banholzer* teaches a vacuum chamber in which shield positioned with the chamber is treated to roughen its surface to increase the adhesion of deposited materials. There is no suggestion or motivation to adapt the shield of *Shan* to have a texturized surface. The primary function of the shield taught by *Shan* is to electrically insulate the chamber wall to control the DC bias of the substrate support; there is no teaching in *Shan* that would suggest that the dielectric properties of the shield would be enhanced by or that the shield would in any way benefit from having a texturized surface. In fact, a texturized surface might undesirably affect the dielectric properties of shield.

Thus, the Examiner has failed to establish a prima facie case because there is no suggestion or motivation to combine *Shan*, *Lee* and *Banholzer* in a manner to teach, show or suggest all of the limitations of independent claim 11, from which claim 24 depends. Moreover, *Shan*, *Lee*, and *Banholzer* do not teach, show or suggest the

308368

RESPONSE TO OFFICE ACTION
Serial No. 10/055,310
Page 24 of 44

additional limitation of a texturized interior surface adapted to be exposed to the interior volume of the processing chamber, as recited by claim 24.

As such, the Examiner failed to properly show that *Shan* in view of *Lee* and further in view of *Banholzer* teaches, shows or suggests all of the features required to sustain the Examiner's rejection under 35 U.S.C. §103 of the Applicants' invention. The Applicants therefore submit that claim 24 is patentable over *Shan* in view of *Lee* and further in view of *Banholzer*. Accordingly, the Applicants respectfully requests the rejection of claim 24 be withdrawn.

2. Claim 32

Claim 32 stands rejected under 35 U.S.C. §103(a) as being unpatentable over *Shan* in view of *Lee* and further in view of *Banholzer*. The Applicants respectfully submit that the Examiner's conclusions regarding the patentability of claim 32 are incorrect.

Shan, *Lee*, and *Banholzer* do not, individually or in combination, teach, show or suggest all of the limitations of independent claim 25, from which claim 32 depends. Moreover, *Shan*, *Lee*, and *Banholzer* do not teach, show or suggest the additional limitation of a texturized inner surface on the first cylindrical wall, as recited by claim 32.

Therefore, claim 32 is patentable over *Shan* in view of *Lee* and further in view of *Banholzer*. Therefore, the Applicants submit that claim 32 as it now stands fully satisfies the requirements of 35 U.S.C. §103 and is patentable thereunder.

F. 35 U.S.C. §103(a): *Shan* in view of *Masuda et al.*

1. Claims 1-3 and 5

Claims 1-3 and 5 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Shan* in view of United States Patent No. 6,171,438, issued January 9, 2001 to *Masuda et al.* (hereinafter referred to as "*Masuda*"). The Applicants respectfully submit that the Examiner's conclusions regarding the patentability of independent claim 1, and claims 2-3 and 5 that depend therefrom, are incorrect.

308368

RESPONSE TO OFFICE ACTION
Serial No. 10/055,310
Page 25 of 44

Specifically, the Applicants submit that there is no motivation for modifying the system taught by *Shan* with the teachings of *Masuda* in a manner that would yield the invention recited by independent claim 1. *Shan* has been discussed above. As discussed, *Shan* teaches an outer dielectric shield that lines a chamber wall and primarily functions to control the DC bias of the substrate support. As further disclosed by *Shan*, the ability of the outer dielectric shield to control the substrate support's DC bias is directly related to the thickness of the outer shield (see, *Shan*, page 2, lines 43-46).

By contrast, *Masuda* teaches a hollow jacket positioned adjacent to a chamber wall and having a hollow space formed therein for circulating a fluid. Forming a similar hollow space for fluid flow within the outer shield taught by *Shan* would impede the primary function of the outer shield, which is to control the DC bias of the substrate support. This function is directly dependent upon the thickness of the outer shield, which would have to be thicker in order to accommodate a space large enough for a useful amount of heat transfer fluid to circulate therethrough. Moreover, the presence of a hollow space and/or fluid within the outer shield (i.e., lining the chamber wall) may negatively interfere with the dielectric properties of the shield, thereby frustrating the primary goal of controlling DC bias, as stated by *Shan*. In addition, the formation of the shield from a dielectric material, as taught by *Shan*, would make the temperature control goals of *Masuda* more difficult to achieve.

The Examiner has not considered either *Shan* or *Masuda* as a whole, because there is no motivation to combine the particular shields/liners taught by *Shan* and *Masuda*. The dielectric shield taught by *Shan* and the heat-exchanging jacket taught by *Masuda* are not compatible structures and are incorporated into the respective plasma chambers to address very different problems. Therefore, there is no motivation to combine *Shan* and *Masuda* in a manner that would yield the claimed invention.

By alleging that the Applicants' invention is taught by a combination of *Shan* and *Masuda*, the Examiner is clearly using hindsight to pick and choose elements from the references to support his rejection. Therefore, there is no justification for combining *Shan* and *Masuda* in a manner that obviates the claimed invention.

308368

RESPONSE TO OFFICE ACTION
Serial No. 10/055,310
Page 26 of 44

Moreover, even if the combination of the references was desirable, the combination of *Shan* and *Masuda* does not teach or suggest the claimed invention, because neither reference teaches a fluid passage formed in a base covering the bottom of a chamber, or a fluid passage formed in an inner wall that extends from an inner side of the base, e.g., to line a substrate support, as recited by independent claim 1.

In addition, there is no teaching or suggestion to combine *Shan* and *Masuda* in a manner that would yield the invention of claims 2 or 3, because neither reference teaches the limitation of a base coupled between an outer wall and an inner wall, e.g., to form a unitary liner than can line a sidewall, bottom and substrate support within a processing chamber. As discussed above, a combination of *Shan* and *Masuda* would require at least two separate, unconnected liners formed of different materials for lining the sidewall and the bottom of the chamber. Thus, claims 2 and 3 are also not obviated by *Shan* in view of *Masuda*.

The Examiner has thus failed to establish a *prima facie* case because there is no motivation to combine *Shan* and *Masuda* in a manner to teach, show or suggest forming a fluid passage within a processing chamber liner having a base and at least one wall, as claimed by Applicants. The Examiner is using hindsight to employ the claimed invention as a framework to select elements from two divergent teachings.

As such, the Examiner fails to properly show that *Shan* in view of *Masuda* teaches, shows or suggests all of the features required to sustain the Examiner's rejection under 35 U.S.C. §103 of the Applicants' claimed invention. The Applicants therefore submit that independent claims 1, and claims 2-3 and 5 that depend therefrom, are patentable over *Shan* in view of *Masuda*. Accordingly, the Applicants respectfully requests the rejection of claims 1-3 and 5 be withdrawn.

308368

RESPONSE TO OFFICE ACTION
Serial No. 10/055,310
Page 27 of 44

2. Claims 11-12, 14-17 and 20-23

Claims 11-12, 14-17 and 20-23 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Shan* in view of *Masuda*. The Applicants respectfully submit that the Examiner's conclusions regarding the patentability of independent claim 11, and claims 12, 14-17 and 20-23 that depend therefrom, are incorrect.

As discussed above, *Shan* and *Masuda* do not, individually or in combination, teach, show or suggest all of the limitations of independent claim 11. Specifically, there is no suggestion or motivation for combining *Shan* and *Masuda* in a manner that would teach, show or suggest a semiconductor processing chamber liner adapted to be removably disposed within a processing region and having a base for substantially covering a bottom of the chamber, where a passage is formed at least partially in the base for fluidly isolating a heat transfer fluid flowing therethrough from the processing region, as recited by claim 11.

Moreover, there is no teaching or suggestion to combine *Shan* and *Masuda* in a manner that would yield the invention of claim 23, because neither reference teaches the limitation of a bottom coupled between an outer cylindrical wall and an inner cylindrical wall, e.g., to form a unitary liner than can line a sidewall, bottom and substrate support within a processing chamber.

Thus, claim 11, and claims 12, 14-17 and 20-23 that depend therefrom, are patentable over *Shan* in view of *Masuda*. Therefore, the Applicants submit that claims 11-12, 14-17 and 20-23, as they now stand, fully satisfy the requirements of 35 U.S.C. §103 and are patentable thereunder.

3. Claims 25-26 and 28-31

Claims 25-26 and 28-31 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Shan* in view of *Masuda*. The Applicants respectfully submit that the Examiner's conclusions regarding the patentability of independent claim 25, and claims 26 and 28-31 that depend therefrom, are incorrect.

308368

RESPONSE TO OFFICE ACTION
Serial No. 10/055,310
Page 28 of 44

As discussed above, *Shan* and *Masuda* do not, individually or in combination, teach, show or suggest all of the limitations of independent claim 25. Specifically, there is no suggestion or motivation for combining *Shan* and *Masuda* in a manner that would teach, show or suggest a liner having an annular base and a cylindrical wall extending from a perimeter of the base, where a substantially annular passage is formed at least partially in the base, as recited by claim 25.

Even if combined, the combination of *Shan* and *Masuda* does not teach or suggest the claimed invention, because neither reference teaches that a base and an outer sidewall (e.g., coupled to the perimeter of the base) of a liner can be formed as a single, unitary piece.

For at least the same reason, claims 30 and 31 are likewise not obviated by the combination of *Shan* and *Masuda*. Claim 30 teaches that the liner further comprises a second cylindrical wall coupled to an inner portion of the base, e.g., to form a single liner piece having a base and inner and outer walls. Claim 31 recites that the base and the cylindrical wall are formed of a common material (e.g., aluminum, ceramic or stainless steel). As a combination of *Shan* and *Masuda* would require at least two separate, unconnected liners formed of different materials, claims 30 and 31 are clearly not obviated by the referenced combination.

Thus, claims 25-26 and 28-31 are patentable over *Shan* in view of *Masuda*. Therefore, the Applicants submit that claims 25-26 and 28-31, as they now stand, fully satisfy the requirements of 35 U.S.C. §103 and are patentable thereunder.

4. Claims 33-35

Claims 33-35 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Shan* in view of *Masuda*. The Applicants respectfully submit that the Examiner's conclusions regarding the patentability of independent claim 33, and claims 34-35 that depend therefrom, are incorrect.

308368

RESPONSE TO OFFICE ACTION
Serial No. 10/055,310
Page 29 of 44

As discussed above, *Shan* and *Masuda* do not, individually or in combination, teach, show or suggest all of the limitations of independent claim 33. Specifically, there is no suggestion or motivation for combining *Shan* and *Masuda* in a manner that would teach, show or suggest a liner having an annular base for covering a bottom of a processing chamber, a first cylindrical wall coupled to an outer portion of the base for extending along sidewalls of the chamber, a second cylindrical wall coupled to an inner portion of the base for extending along a substrate support, and a substantially annular passage formed at least partially in the base, as recited by claim 33.

Even if combined, the combination of *Shan* and *Masuda* does not teach or suggest the claimed invention, because neither reference teaches that single, unitary chamber liner can include a base and inner and outer walls.

Moreover, claim 34 is not obviated by the combination of *Shan* and *Masuda*, as neither reference teaches at least one ridge extending between a first cylindrical wall and a second cylindrical wall of a chamber liner in a spaced-apart relation to a base of the liner.

Thus, claims 33-35 are patentable over *Shan* in view of *Masuda*. Therefore, the Applicants submit that claims 33-35, as they now stand, fully satisfy the requirements of 35 U.S.C. §103 and are patentable thereunder.

5. Claim 36

Claim 36 stands rejected under 35 U.S.C. §103(a) as being unpatentable over *Shan* in view of *Masuda*. The Applicants respectfully submit that the Examiner's conclusions regarding the patentability of independent claim 36 are incorrect.

As discussed above, *Shan* and *Masuda* do not, individually or in combination, teach, show or suggest all of the limitations of independent claim 36. Specifically, there is no suggestion or motivation for combining *Shan* and *Masuda* in a manner that would teach, show or suggest a cylindrical liner section adapted to line a wall of a processing chamber, a center section coupled to one end of the cylindrical section for lining an upper surface of a processing chamber, and a substantially annular passage at least partially formed in the center section, where the cylindrical section and the center section form a single piece structure, as recited by claim 36.

308368

RESPONSE TO OFFICE ACTION
Serial No. 10/055,310
Page 30 of 44

Even if combined, the combination of *Shan* and *Masuda* does not teach or suggest the claimed invention, because neither reference teaches a liner that is adapted to line an upper surface of a processing chamber, or a single liner that is adapted to line both a chamber wall and an upper chamber surface. Moreover, neither *Shan* nor *Masuda* teaches or suggests a passage formed in a portion of a liner adapted to line an upper section of a processing chamber.

Thus, claim 36 is patentable over *Shan* in view of *Masuda*. Therefore, the Applicants submit that claim 36, as it now stands, fully satisfies the requirements of 35 U.S.C. §103 and is patentable thereunder.

6. Claims 37-39

Claims 37-39 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Shan* in view of *Masuda*. The Applicants respectfully submit that the Examiner's conclusions regarding the patentability of independent claim 37, and claims 38-39 that depend therefrom, are incorrect.

Shan and *Masuda* do not, individually or in combination, teach, show or suggest all of the limitations of independent claim 37. Specifically, there is no suggestion or motivation for combining *Shan* and *Masuda* in a manner that would teach, show or suggest a liner having a center member for substantially covering an upper surface of a processing chamber, a cylindrical wall extending from a side of the center member that is exposed to a processing volume, the cylindrical wall being adapted to line walls of the processing chamber, and a substantially annular passage formed at least partially in the center member and adapted to isolate a heat transfer fluid flowing therethrough from the processing volume, as recited by claim 37.

Even if combined, the combination of *Shan* and *Masuda* does not teach or suggest the claimed invention, because neither reference teaches a liner that is adapted to line an upper surface of a processing chamber, or a single liner that is adapted to line both a chamber wall and an upper chamber surface. Moreover, neither *Shan* nor *Masuda* teaches or suggests a passage formed in a portion of a liner adapted to line an upper section of a processing chamber.

308368

RESPONSE TO OFFICE ACTION
Serial No. 10/055,310
Page 31 of 44

Thus, claims 37-39 are patentable over *Shan* in view of *Masuda*. Therefore, the Applicants submit that claims 37-39, as they now stand, fully satisfy the requirements of 35 U.S.C. §103 and are patentable thereunder.

G. 35 U.S.C. §103(a): *Shan* in view of *Masuda* and further in view of *Collins*

1. Claim 4

Claim 4 stands rejected under 35 U.S.C. §103(a) as being unpatentable over *Shan* in view of *Masuda* and further in view of *Collins*. The Applicants respectfully submit that the Examiner's conclusions regarding the patentability of claim 4 are incorrect.

As discussed above, the Applicants submit that there is no motivation for modifying the system taught by *Shan* with the teachings of *Masuda* in a manner that would yield the invention recited by independent claim 1, from which claim 4 depends. *Collins* does not bridge this gap in the teachings of *Shan* and *Lee*. Specifically, where *Shan* and *Masuda* are concerned with reducing the amount of deposition on the walls and/or pedestal of the chamber, *Collins* is concerned with preventing plasma from traveling to certain portions of the chamber (i.e., prevent plasma from escaping the chamber or depositing on ports to the chamber exterior). Therefore, the magnets taught by *Collins* would not necessarily provide any benefit to or enhancement of the advantages sought by the teachings of *Shan* and *Masuda*.

Moreover, as discussed above, the Examiner's claim that a broad, reasonable interpretation of the meaning of "inner wall" is clearly met by the teachings of *Collins* overlooks a key aspect of the present invention, which is that the liner is removable. In addition, the apparatus taught by *Shan* is also described as being removable. Thus, there is no motivation to combine the teachings of *Collins* with those of *Shan* and *Masuda* in a manner that would yield the claimed invention.

Thus, the Examiner has failed to establish a prima facie case because there is no motivation to combine *Shan*, *Masuda* and *Collins* in a manner to teach, show or suggest forming a fluid passage within a processing chamber liner having a base and at least one wall and positioning magnets within the wall, as claimed by Applicants. The

308368

RESPONSE TO OFFICE ACTION
Serial No. 10/055,310
Page 32 of 44

Examiner is using hindsight to employ the claimed invention as a framework to select elements from divergent teachings.

As such, the Examiner fails to properly show that *Shan* in view of *Masuda* and further in view of *Collins* teaches, shows or suggests all of the features required to sustain the Examiner's rejection under 35 U.S.C. §103 of the Applicants' claimed invention. The Applicants therefore submit that independent claim 1, and claim 4 that depends therefrom, are patentable over *Shan* in view of *Masuda* and further in view of *Collins*. Accordingly, the Applicants respectfully requests the rejection of claim 4 be withdrawn.

2. Claims 18-19

Claims 18-19 stands rejected under 35 U.S.C. §103(a) as being unpatentable over *Shan* in view of *Masuda* and further in view of *Collins*. The Applicants respectfully submit that the Examiner's conclusions regarding the patentability of claims 18-19 are incorrect.

Shan, *Masuda*, and *Collins* do not, individually or in combination, teach, show or suggest all of the limitations of independent claim 11, from which claims 18-19 depend. Moreover, *Shan*, *Masuda*, and *Collins* do not teach, show or suggest the additional limitation of a magnet disposed within the cylindrical wall, as recited by claim 18, or the additional limitation of a lip extending into the process volume and having a magnet disposed therein, as recited by claim 19.

Therefore, claims 18-19 are patentable over *Shan* in view of *Masuda* and further in view of *Collins*. Therefore, the Applicants submit that claims 18-19 as they now stand fully satisfy the requirements of 35 U.S.C. §103 and are patentable thereunder.

308368

RESPONSE TO OFFICE ACTION
Serial No. 10/055,310
Page 33 of 44**H. 35 U.S.C. §103(a): *Shan* in view of *Masuda* and further in view of *Reimold*****1. Claim 6**

Claim 6 stands rejected under 35 U.S.C. §103(a) as being unpatentable over *Shan* in view of *Masuda* and further in view of *Reimold*. The Applicants respectfully submit that the Examiner's conclusions regarding the patentability of claim 6 are incorrect.

As discussed above, the Applicants submit that there is no motivation for modifying the system taught by *Shan* with the teachings of *Masuda* in a manner that would yield the invention recited in independent claim 1, from which claim 6 depends. *Reimold* does not bridge this gap in the teachings of *Shan* and *Masuda*. As the heat exchanging fluid taught by *Masuda* is provided by a simple inlet pipe and is confined to the hollow jacket, and because *Masuda* does not appear describe an outlet or means for evacuating the fluid from the jacket, there is little need for a heat exchanger such as that described by *Reimold*, in which a plurality of bosses are provided for establishing a plurality of connections to other components. Therefore, the heat exchanger taught by *Reimold* would not necessarily provide any benefit to or enhancement of the advantages sought by the teachings of *Shan* and *Masuda*. Thus, the Applicants submit that the Examiner is exercising hindsight in using the references to obviate the claims at issue.

Thus, the Examiner has failed to establish a prima facie case because there is no suggestion or motivation to combine *Shan*, *Masuda* and *Reimold* in a manner to teach, show or suggest all of the limitations of independent claim 1, from which claim 6 depends. Moreover, *Shan*, *Masuda*, and *Reimold* do not teach, show or suggest the additional limitation of first and second bosses projecting from the base and individually in fluid communication with the passage at the inlet and the outlet, as recited by claim 6.

As such, the Examiner failed to properly show that *Shan* in view of *Masuda* and further in view of *Reimold* teaches, shows or suggests all of the features required to sustain the Examiner's rejection under 35 U.S.C. §103 of the Applicants' invention. The Applicants therefore submit that independent claim 1, and claim 6 that depends

RESPONSE TO OFFICE ACTION
Serial No. 10/055,310
Page 34 of 44

therefrom, are patentable over *Shan* in view of *Masuda* and further in view of *Reimold*. Accordingly, the Applicants respectfully requests the rejection of claim 6 be withdrawn.

2. Claim 13

Claim 13 stands rejected under 35 U.S.C. §103(a) as being unpatentable over *Shan* in view of *Masuda* and further in view of *Reimold*. The Applicants respectfully submit that the Examiner's conclusions regarding the patentability of claim 13 are incorrect.

Specifically, *Shan*, *Masuda*, and *Reimold* do not, individually or in combination, teach, show or suggest all of the limitations of independent claim 11, from which claim 13 depends. Moreover, *Shan*, *Masuda*, and *Reimold* do not teach, show or suggest the additional limitation of first and second bosses projecting from the base and individually in fluid communication with the passage at the inlet and the outlet, as recited by claim 13.

Therefore, claim 13 is patentable over *Shan* in view of *Masuda* and further in view of *Reimold*. Therefore, the Applicants submit that claim 13 as it now stands fully satisfies the requirements of 35 U.S.C. §103 and is patentable thereunder.

3. Claim 27

Claim 27 stands rejected under 35 U.S.C. §103(a) as being unpatentable over *Shan* in view of *Masuda* and further in view of *Reimold*. The Applicants respectfully submit that the Examiner's conclusions regarding the patentability of claim 27 are incorrect.

Shan, *Masuda*, and *Reimold* do not, individually or in combination, teach, show or suggest all of the limitations of independent claim 25, from which claim 27 depends. Moreover, *Shan*, *Masuda*, and *Reimold* do not teach, show or suggest the additional limitation of first and second bosses projecting from the base and individually in fluid communication with the passage at the inlet and the outlet, as recited by claim 27.

308368

RESPONSE TO OFFICE ACTION
Serial No. 10/055,310
Page 35 of 44

Therefore, claim 27 is patentable over *Shan* in view of *Masuda* and further in view of *Reimold*. Therefore, the Applicants submit that claim 27 as it now stands fully satisfies the requirements of 35 U.S.C. §103 and is patentable thereunder.

I. 35 U.S.C. §103(a): *Shan* in view of *Masuda* and further in view of *Banholzer*

1. Claim 24

Claim 24 stands rejected under 35 U.S.C. §103(a) as being unpatentable over *Shan* in view of *Masuda* and further in view of *Reimold*. The Applicants respectfully submit that the Examiner's conclusions regarding the patentability of claim 24 are incorrect.

As discussed above, the Applicants submit that there is no motivation for modifying the system taught by *Shan* with the teachings of *Masuda* in a manner that would yield the invention recited in independent claim 11, from which claim 24 depends. *Banholzer* does not bridge this gap in the teachings of *Shan* and *Masuda*. Primarily, there is no suggestion or motivation to adapt the shield of *Shan* to have a textured surface. The primary function of the shield taught by *Shan* is to electrically insulate the chamber wall to control the DC bias of the substrate support; there is no teaching in *Shan* that would suggest that the dielectric properties of the shield would be enhanced by or that the shield would in any way benefit from having a textured surface. In fact, a textured surface might undesirably affect the dielectric properties of shield.

Thus, *Shan*, *Masuda*, and *Banholzer* do not, individually or in combination, teach, show or suggest all of the limitations of independent claim 11, from which claim 24 depends. Moreover, *Shan*, *Masuda*, and *Banholzer* do not teach, show or suggest the additional limitation of a textured interior surface adapted to be exposed to the interior volume of the processing chamber, as recited by claim 24.

Therefore, claim 11, and 24 that depends therefrom, are patentable over *Shan* in view of *Masuda* and further in view of *Banholzer*. Therefore, the Applicants submit that claim 24 as it now stands fully satisfies the requirements of 35 U.S.C. §103 and is patentable thereunder.

RESPONSE TO OFFICE ACTION
Serial No. 10/055,310
Page 36 of 44

2. Claim 32

Claim 32 stands rejected under 35 U.S.C. §103(a) as being unpatentable over *Shan* in view of *Masuda* and further in view of *Banholzer*. The Applicants respectfully submit that the Examiner's conclusions regarding the patentability of claim 32 are incorrect.

As discussed above, *Shan*, *Masuda*, and *Banholzer* do not, individually or in combination, teach, show or suggest all of the limitations of independent claim 25, from which claim 32 depends. Moreover, *Shan*, *Masuda*, and *Banholzer* do not teach, show or suggest the additional limitation of a textured inner surface on the first cylindrical wall, as recited by claim 32.

Therefore, claim 32 is patentable over *Shan* in view of *Masuda* and further in view of *Banholzer*. Therefore, the Applicants submit that claim 32 as it now stands fully satisfies the requirements of 35 U.S.C. §103 and is patentable thereunder.

J. 35 U.S.C. §103(a): *Shan* in view of *Miyamoto*

1. Claims 7-10

Claims 7-10 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Shan* in view of United States Patent No. 5,846,331 issued December 8, 1998 to *Miyamoto* (hereinafter referred to as "*Miyamoto*"). The Applicants respectfully submit that the Examiner's conclusions regarding the patentability of claims 7-10 over *Shan* in view of *Miyamoto* are incorrect.

Shan and *Miyamoto* do not, individually or in combination, teach, show or suggest all of the limitations of independent claim 7, from which claims 8-10 depend. As discussed above, *Shan* teaches liners (i.e. removable structures) for covering the walls or sides of a processing chamber. *Miyamoto* teaches a lid (i.e., an integral, permanent portion of the processing chamber) for sealing a top of a chamber and having a plurality of concentric flow paths formed in therein for circulating a hot conductive medium, in order to control the temperature of the lid. Neither *Shan* nor

308368

RESPONSE TO OFFICE ACTION
Serial No. 10/055,310
Page 37 of 44

Miyamoto teaches, shows or suggests circulation of a fluid through a passage in a removable liner that lines the chamber lid and walls.

In fact, Miyamoto teaches away from the liner disclosed by Shan, as Shan teaches prevention of film deposition on chamber walls by installing additional components (i.e., shields) along the chamber walls and Miyamoto teaches the prevention of film deposition on a chamber lid by flowing a heated fluid through the lid itself. Furthermore, the lid of Shan does not teach protecting the lid from reaction product deposition, as a substantial portion of the underside of the aluminum lid is coupled to a gas distribution plate and thus very little surface area of the lid may be exposed.

Thus, the Examiner has failed to establish a *prima facie* case because there is no suggestion or motivation to combine Shan and Miyamoto in a manner to teach, show or suggest Thus, there is no motivation to combine Shan and Miyamoto in a manner that would teach, show or suggest a single lining apparatus for lining a processing chamber having a center member circumscribed by a flange, a cylindrical wall projecting upward from the center member inside of the flange, and a substantially annular passage formed in the center member, as disclosed by Applicants in independent claim 7.

Even if combined, the combination of Shan and Miyamoto does not teach or suggest the claimed invention, because neither reference teaches a single liner that is adapted to simultaneously line three surfaces of a processing volume (i.e., a chamber wall, a chamber bottom, and a substrate support).

Therefore, independent claims 7, and claims 8-10 that depend therefrom, are patentable over Shan in view of Miyamoto. Therefore, the Applicants submit that claims 7-10 as they now stand fully satisfy the requirements of 35 U.S.C. §103 and are patentable thereunder.

RESPONSE TO OFFICE ACTION
Serial No. 10/055,310
Page 38 of 44

2. Claim 36

Claim 36 stands rejected under 35 U.S.C. §103(a) as being unpatentable over *Shan* in view of *Miyamoto*. The Applicants respectfully submit that the Examiner's conclusions regarding the patentability of independent claim 36 over *Shan* in view of *Miyamoto* are incorrect.

In particular, there is no motivation to combine *Shan* and *Miyamoto* in a manner that teaches or suggests all of the limitations recited by independent claim 36. Specifically, there is no suggestion or motivation to combine *Shan* and *Miyamoto* in a manner to teach, show or suggest a removable lining apparatus for lining a processing chamber comprising a unitary structure having both a center member for covering an upper surface of the chamber and a cylindrical wall coupled to the center member for lining the chamber walls, where a substantially annular passage is formed in the center member, as disclosed by Applicants in claim 36.

Even if combined, the combination of *Shan* and *Miyamoto* does not teach or suggest the claimed invention, because neither reference teaches a single liner that is adapted to simultaneously line both a chamber wall and an upper surface of the chamber.

Therefore, claim 36 is patentable over *Shan* in view of *Miyamoto*. Therefore, the Applicants submit that claim 36 as it now stands fully satisfies the requirements of 35 U.S.C. §103 and is patentable thereunder.

3. Claims 37-39

Claims 37-39 stands rejected under 35 U.S.C. §103(a) as being unpatentable over *Shan* in view of *Miyamoto*. The Applicants respectfully submit that the Examiner's conclusions regarding the patentability of claims 37-39 over *Shan* in view of *Miyamoto* are incorrect.

Shan and *Miyamoto* do not, individually or in combination, teach, show or suggest all of the limitations of independent claim 37, from which claims 38-39 depend. Specifically, there is no suggestion or motivation to combine *Shan* and *Miyamoto* in a manner to teach, show or suggest a single lining apparatus for lining a processing

308368

RESPONSE TO OFFICE ACTION
Serial No. 10/055,310
Page 39 of 44

chamber having a center member for covering an upper surface of the chamber and a cylindrical wall extending from the center member to line walls of the chamber, where a substantially annular passage is formed in the center member, as disclosed by Applicants in claim 37.

Even if combined, the combination of *Shan* and *Miyamoto* does not teach or suggest the claimed invention, because neither reference teaches a single liner that is adapted to simultaneously line both a chamber wall and an upper surface of the chamber.

Therefore, claims 37-39 are patentable over *Shan* in view of *Miyamoto*. Therefore, the Applicants submit that claims 37-39 as they now stand fully satisfy the requirements of 35 U.S.C. §103 and are patentable thereunder.

K. 35 U.S.C. §103(a): *Pu*

1. Claim 36

Claim 36 stands rejected under 35 U.S.C. §103(a) as being unpatentable over *Pu*. The Applicants respectfully submit that the Examiner's conclusions regarding the patentability of claim 36 over *Pu* are incorrect.

Primarily, the Applicants submit that *Pu* does not teach, show or suggest every limitation the claimed invention. Namely, *Pu* does not teach, show or suggest an apparatus for lining a processing region including a unitary structure having a center section for substantially covering an upper surface of the chamber, a cylindrical liner section coupled to the center member and adapted to line at least a portion of the walls of the processing chamber, and a substantially annular passage at least partially formed in the center section, as recited by independent claim 36.

As discussed above, *Pu* teaches that the lid (*i.e.*, an integral, permanent portion of the chamber body, not a removable liner for covering the lid) of the processing chamber may include channels through which a dielectric cooling fluid can be pumped to regulate the lid temperature. While the lid taught by *Pu* may be coupled to the chamber sidewalls (*i.e.*, again, to integral, permanent portions of the chamber body), the lid does not include any walls or portions that extend therefrom to line the chamber

308368

RESPONSE TO OFFICE ACTION
Serial No. 10/055,310
Page 40 of 44

sidewalls (i.e., as removable liners for lining or covering the sidewalls). Therefore, the Applicants respectfully submit that the Examiner is reading structural limitations into *Pu* that simply are not taught, shown or suggested by the disclosure.

As such, the Examiner failed to properly show that *Pu* teaches, shows or suggests all of the features required to sustain the Examiner's rejection under 35 U.S.C. §103 of the Applicants' invention. The Applicants therefore submit that claim 36 is patentable over *Pu*. Accordingly, the Applicants respectfully requests the rejection of claim 36 be withdrawn.

L. 35 U.S.C. §103(a): *Pu* in view of *Masuda*

Claims 1-3, 5, 11-12, 14-17, 20-23, 25-26, 28-31, 33-35 and 38-39 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Pu* in view of *Masuda*. The Applicants respectfully submit that the Examiner's conclusions regarding the patentability of claims 1-3, 5, 11-12, 14-17, 20-23, 25-26, 28-31, 33-35 and 38-39 over *Pu* in view of *Masuda* are incorrect.

As discussed above, *Pu* teaches the same shields taught by *Shan*; *Pu* incorporates *Shan* by reference in order to more fully describe the shields depicted therein. As also discussed above, the combination of *Shan* and *Masuda* fails to teach, show or suggest all of the limitations of Applicants' claimed invention. Thus, for at least the same reasons set forth above with respect to the Examiner's rejection over *Shan* in view of *Masuda*, the combination of *Pu* and *Masuda* also fails to teach, show or suggest the invention recited in claims 1-3, 5, 11-12, 14-17, 20-23, 25-26, 28-31, 33-35 and 38-39.

M. 35 U.S.C. §103(a): *Pu* in view of *Masuda* and further in view of *Collins*

Claims 4 and 18-19 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Pu* in view of *Masuda* and further in view of *Collins*. The Applicants respectfully submit that the Examiner's conclusions regarding the patentability of claims 4 and 18-19 over *Shan* in view of *Masuda* and further in view of *Collins* are incorrect. For at least the same reasons set forth above with respect to the Examiner's rejection of

308368

RESPONSE TO OFFICE ACTION
Serial No. 10/055,310
Page 41 of 44

claims 4 and 18-19 over the combination of *Shan, Masuda and Collins*, there is no motivation to combine *Pu, Masuda and Collins* in a manner that teaches or suggests all of the limitations recited by claims 4 and 18-19.

N. 35 U.S.C. §103(a): *Pu* in view of *Masuda* and further in view of *Reimold*

Claims 6, 13 and 27 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Pu* in view of *Masuda* and further in view of *Reimold*. The Applicants respectfully submit that the Examiner's conclusions regarding the patentability of claims 6, 13 and 27 over *Pu* in view of *Masuda* and further in view of *Reimold* are incorrect. For at least the same reasons set forth above with respect to the Examiner's rejection of claims 6, 13 and 27 over the combination of *Shan, Masuda and Reimold*, there is no motivation to combine *Pu, Masuda and Reimold* in a manner that teaches or suggests all of the limitations recited by claims 6, 13 and 27.

O. 35 U.S.C. §103(a): *Pu* in view of *Masuda* and further in view of *Banholzer*

Claims 24 and 32 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Pu* in view of *Masuda* and further in view of *Banholzer*. The Applicants respectfully submit that the Examiner's conclusions regarding the patentability of claims 24 and 32 over *Pu* in view of *Masuda* and further in view of *Banholzer* are incorrect. For at least the same reasons set forth above with respect to the Examiner's rejection of claims 24 and 32 over the combination of *Shan, Masuda and Banholzer*, there is no motivation to combine *Pu, Masuda and Banholzer* in a manner that teaches or suggests all of the limitations recited by claims 24 and 32.

308368

RESPONSE TO OFFICE ACTION
Serial No. 10/055,310
Page 42 of 44**P. 35 U.S.C. §103(a): *Pu* in view of *Shan***

Claims 7-10 and 38-39 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Pu* in view of *Shan*. The Applicants respectfully submit that the Examiner's conclusions regarding the patentability of claims 7-10 and 38-39 over *Pu* in view of *Shan* are incorrect. As discussed above, *Shan* teaches exactly the same liners that are taught by *Pu*; *Pu* incorporates *Shan* by reference in order to more fully describe the liners depicted therein. Thus, for the purposes of the Examiner's rejection, *Shan* is merely redundant and does not add any substantially new teachings to those already taught by *Pu*. Therefore, for at least the same reasons set forth above with respect to the Examiner's individual rejections including *Pu* and *Shan*, claims 7-10 and 38-39 are patentable over *Pu* in view of *Shan*.

Q. 35 U.S.C. §103(a): *Pu* in view of *Lee*

Claims 1-3, 5, 11-12, 14-17, 20-23, 25-26, 28-31 and 33-35 and 38-39 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Pu* in view of *Lee*. The Applicants respectfully submit that the Examiner's conclusions regarding the patentability of claims 1-3, 5, 11-12, 14-17, 20-23, 25-26, 28-31 and 33-35 and 38-39 over *Pu* in view of *Lee* are incorrect. For at least the same reasons set forth above with respect to the Examiner's rejection of claims 1-3, 5, 11-12, 14-17, 20-23, 25-26, 28-31 and 33-35 and 38-39 over the combination of *Shan* and *Lee*, there is no motivation to combine *Pu* and *Lee* in a manner that teaches or suggests all of the limitations recited by claims 1-3, 5, 11-12, 14-17, 20-23, 25-26, 28-31 and 33-35 and 38-39.

R. 35 U.S.C. §103(a): *Pu* in view of *Lee* and further in view of *Collins*

Claims 4 and 18-19 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Pu* in view of *Lee* and further in view of *Collins*. The Applicants respectfully submit that the Examiner's conclusions regarding the patentability of claims 4 and 18-19 over *Pu* in view of *Lee* and further in view of *Collins* are incorrect. For at least the same reasons set forth above with respect to the Examiner's rejection of claims 4 and 18-19 over the combination of *Shan*, *Lee*, and *Collins*, there is no

308368

RESPONSE TO OFFICE ACTION
Serial No. 10/055,310
Page 43 of 44

motivation to combine *Pu*, *Lee*, and *Collins* in a manner that teaches or suggests all of the limitations recited by claims 4 and 18-19.

S. 35 U.S.C. §103(a): *Pu* in view of *Lee* and further in view of *Reimold*

Claims 6, 13 and 27 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Pu* in view of *Lee* and further in view of *Reimold*. The Applicants respectfully submit that the Examiner's conclusions regarding the patentability of claims 6, 13 and 27 over *Pu* in view of *Lee* and further in view of *Reimold* are incorrect. For at least the same reasons set forth above with respect to the Examiner's rejection of claims 6, 13 and 27 over the combination of *Shan*, *Lee*, and *Reimold*, there is no motivation to combine *Pu*, *Lee*, and *Reimold* in a manner that teaches or suggests all of the limitations recited by claims 6, 13 and 27.

T. 35 U.S.C. §103(a): *Pu* in view of *Lee* and further in view of *Banholzer*

Claims 24 and 32 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Pu* in view of *Lee* and further in view of *Banholzer*. The Applicants respectfully submit that the Examiner's conclusions regarding the patentability of claims 24 and 32 over *Pu* in view of *Lee* and further in view of *Banholzer* are incorrect. For at least the same reasons set forth above with respect to the Examiner's rejection of claims 24 and 32 over the combination of *Shan*, *Lee*, and *Banholzer*, there is no motivation to combine *Pu*, *Lee*, and *Banholzer* in a manner that teaches or suggests all of the limitations recited by claims 24 and 32.

CONCLUSION

Thus, the Applicants submit that all claims now pending are in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issuance are earnestly solicited.

308368

RESPONSE TO OFFICE ACTION
Serial No. 10/055,310
Page 44 of 44

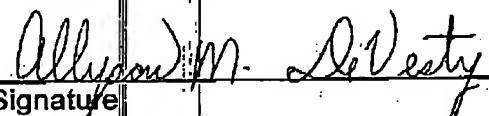
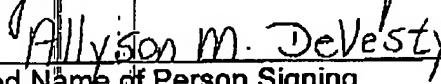
If, however, the Examiner believes that any unresolved issues still exist, it is requested that the Examiner telephone Mr. Keith Taboada at (732) 530-9404 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,


Keith P. TABOADA
Registration No. 45,150
MOSER, PATTERSON & SHERIDAN, LLP
595 Shrewsbury Avenue
Suite 100
Shrewsbury, NJ 07702
Telephone: (732) 530-9404
Facsimile: (732) 530-9808
Attorney for Applicant(s)

CERTIFICATE OF TRANSMISSION UNDER 37 C.F.R. §1.8

I hereby certify that this correspondence is being transmitted by facsimile under 37 C.F.R. §1.8 on October 12, 2004 and is addressed to the Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, Facsimile No. (703) 872-9306.


Signature

Printed Name of Person Signing

10-12-04
Date of signature

308368

**This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- BLACK BORDERS**
- IMAGE CUT OFF AT TOP, BOTTOM OR SIDES**
- FADED TEXT OR DRAWING**
- BLURRED OR ILLEGIBLE TEXT OR DRAWING**
- SKEWED/SLANTED IMAGES**
- COLOR OR BLACK AND WHITE PHOTOGRAPHS**
- GRAY SCALE DOCUMENTS**
- LINES OR MARKS ON ORIGINAL DOCUMENT**
- REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY**
- OTHER:** _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.